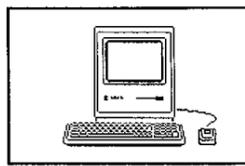




Computer camera

You can barely tell the difference between a normal photograph and STS-48's electronic stills. Photos on Page 3.



UNIX union

JSC's Information Systems Directorate is putting together a UNIX administrators group. Story on Page 4.

Space News Roundup

Vol. 30

September 20, 1991

No. 37

Truly separates space operations, development

Creates Office of Space Flight Development

NASA Administrator Richard Truly will create a new Office of Space Flight Development, allowing the Office of Space Flight to devote its undivided attention to space operations.

The new organization will be responsible for the development of Space Station *Freedom*; large propulsion systems, including the new National Launch System and its new space transportation main engine; other large space flight projects; and planning the advanced transportation systems program.

"As a result of this organizational change, NASA's existing Office of Space Flight will be

able to devote undivided attention to the safety and efficiency of space flight operation," Truly said.

The Office of Space Flight will retain responsibility for the space shuttle program, Space Station *Freedom* and Spacelab operations and utilization, expendable launch vehicle operations and upper stages. It also will be charged with establishing operational requirements for new capability development projects undertaken by the new office. Institutional reporting of NASA field centers will remain unchanged.

Please see **DETAILED**, Page 4

Advisory group impressed with NASA response

The Advisory Committee on the Future of the U.S. Space Program reported Monday that it was impressed with NASA's responsiveness to its recommendations, but that the agency faces continuing challenges.

Chairman Norman Augustine, who sent the group's comments to NASA Administrator Richard Truly following a reunion at Kennedy Space Center, wrote that the committee saw no reason to revise its conclusions of last December despite fundamental changes in world politics and U.S. civil space activities.

"We are encouraged by some of the events

which have transpired since then and discouraged by others — but we did not enter upon our task with the notion that all we suggested would be accomplished in a few months," Augustine wrote.

Augustine said the group views the space program as a long undertaking, and that the impact of current budget constraints and NASA's response to its recommendations will be judged over a period of years, not months.

"We believe that NASA management has carefully considered our findings and is taking

Please see **ADVISORY**, Page 4

Thompson will resign as deputy

NASA Deputy Administrator J.R. Thompson said Monday that he will resign Nov. 8 due to personal circumstances.

Thompson, who became NASA's deputy administrator on July 6, 1989, said he has submitted a letter of resignation to President Bush.

"I consider the last several years serving as NASA's deputy administrator a highlight of my career with the agency that spans over 25

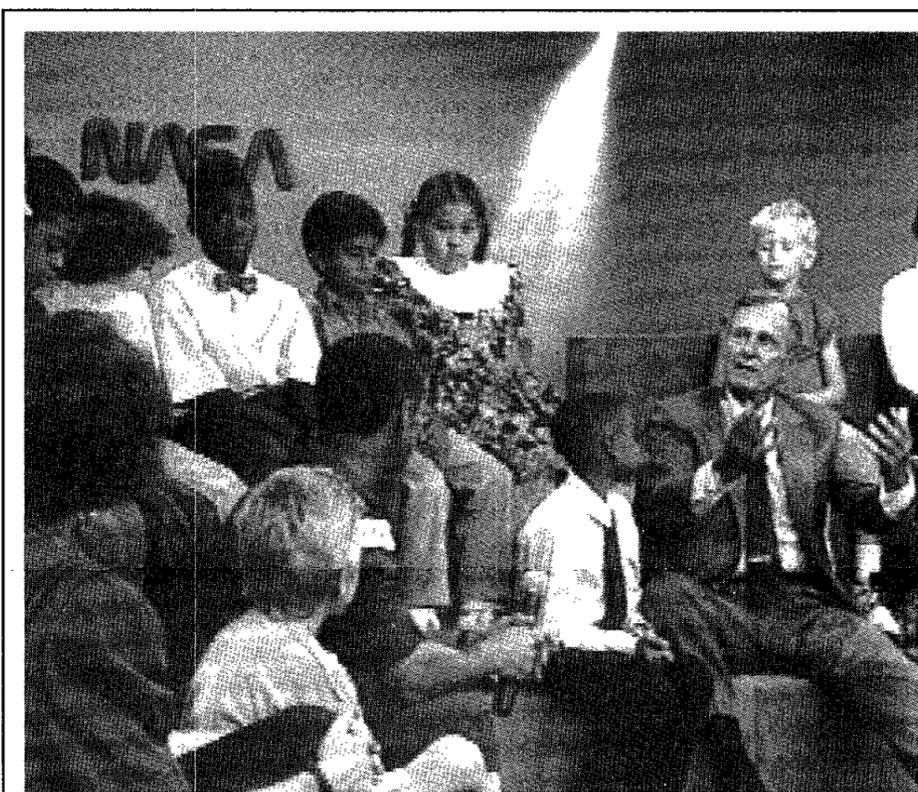


Thompson

years," Thompson said. "I have tremendous respect for the men and women of NASA who today lead the world in aeronautics and the exploration of space. Their collective achievements are unmatched anywhere in the world."

Thompson is an internationally recognized propulsion expert who has managed major space programs and directed major research and development efforts. He entered federal service in 1963 at the Marshall Space Flight Center as a liquid propulsion engineer. In 1969, as chief of Man/Systems Integration in the Astronautics Laboratory, he managed the man/machine interface on Skylab.

In 1974, Thompson was chosen to manage the space shuttle main engine project. In 1983, Thompson joined Princeton University's Plasma Physics Lab, working on fusion energy research. He rejoined NASA in 1986 as the director of Marshall Space Flight Center to help in the effort to return the space shuttle to safe flight following the Challenger accident.



JSC Electronic Photo

President Bush talks with Washington, D.C.-area third-graders and Astronaut Charlie Bolden during the live television program "Launching the School Year with President Bush."

President would 'love' space trip

President George Bush told an inquisitive youngster Tuesday he'd like to make a trip into space, but that he didn't think he'd be allowed to because of his age.

"I'd love to do it," Bush said. "I really would love to see the world as these people have seen it. And I think I'd be a better President if I had."

The President, who is 67, said he thinks his health would be good enough for the trip, and added that he would love to have one of his 12 grandchildren make the trip someday.

Bush responded to the question during a live national broadcast on NASA Select Television and the Public Broadcasting System. He fielded questions from elemen-

tary school students in a television studio at NASA Headquarters and in a classroom in LaPorte, Texas, during an hour-long program called "Launching the School Year with President Bush."

Astronaut Charlie Bolden hosted the program at Headquarters in Washington, D.C., and Astronaut Tammy Jernigan took questions from fourth graders at College Park Elementary School in LaPorte.

"When I was a kid, we had some idols we felt were out of this world," Bush said. "With people like Charlie and Tammy Jernigan, they really are out of this world."

Asked why he wants to send humans to

Please see **TRULY**, Page 4

'A most excellent adventure'

Discovery crew begins Mission to Planet Earth

By Kelly Humphries

The Space Shuttle *Discovery* and its crew of five landed safely in California Wednesday morning, ending "a most excellent adventure" that launched NASA's Mission to Planet Earth and laid groundwork for the space program's next step.

STS-48 ended at 2:38 a.m. CDT Wednesday at Edwards Air Force Base after being waved off from a planned Kennedy Space Center night landing because of late-developing clouds. The landing switch disappointed America's heartland, which had been gearing up for a rare opportunity to watch *Discovery* streak through the night sky as it reentered along its 57-degree inclination.

The crew — Commander J.O. Creighton, Pilot Ken Reightler and Mission Specialists Mark Brown, Jim Buchli, and Sam Gemar — returned to Houston on Wednesday afternoon for a welcome home ceremony at Ellington Field.

"That was a most excellent adventure," Reightler said of the 5 day, 8 hour and 27 minute mission to deploy the Upper Atmosphere Research Satellite, test space station construction theory, and perform commercial microgravity research.

Creighton said he was taunted on the way back to Houston by crewmates who remarked that, "Only a Navy pilot would miss his intended landing by 3,000 miles."

Discovery lifted off at 6:11 p.m. CDT Sept. 12 after a 14-minute hold to resolve a minor communications problem. During ascent, the primary flash evaporator system shut down, but the backup performed well and flight controllers determined it was a transient situation and used the primary system for landing.

UARS was placed on station at 11:23 p.m. CDT Saturday, a little behind schedule because of a faulty communications link with the Tracking and Data Relay Satellite that was corrected once UARS was in its initial 308 nautical mile orbit.

"It was a spectacular show," Creighton said. "It's on

Please see **DISCOVERY**, Page 4



Parking study forecasts shortage

Walking distances, green space, investment considered

By Kyle Herring

Sufficient parking exists at JSC to accommodate current needs, but the future parking supply will be inadequate for the demand, according to a recent analysis of traffic and parking conditions at the center.

The study, based on responses to a survey conducted during April and May, concluded that "employees are very interested in parking and traffic conditions at JSC," according to Dick Thompson, manager of Center Operations' Facility Planning Office.

Some of the recommendations in the report already have been implemented and more changes are possible in the near future. Center management is studying the long-term options it has for dealing with an additional 1,000 to 1,500 workers expected to move back on site from leased off-site offices. They would deplete all parking reserves and leave a shortage of about 1,000 spaces.

The survey was sent to 448 NASA civil service and

420 contractor employees randomly selected based on alphabetical listings. It generated a surprising 71 percent response rate.

"We expected only about a 50 percent response rate, but the response proves that employees are very concerned about the parking situation," said Larry Shel mire, master planner at JSC and project engineer on the study.

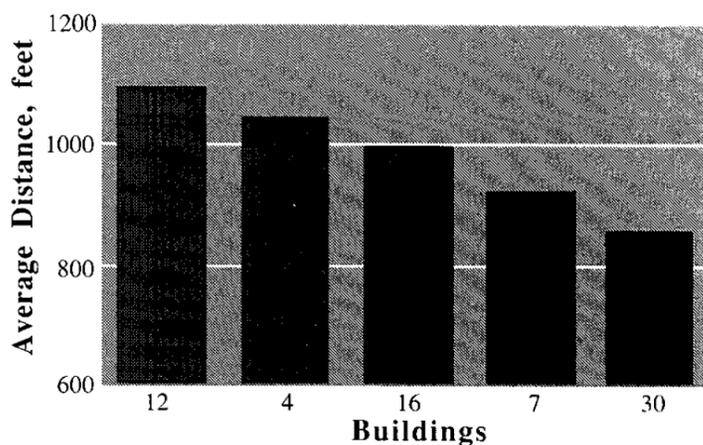
The average distance workers walk from parking lot to office is 750 feet, based on the survey results.

Employees in Bldg. 12 walk the farthest, an average of 1,100 feet. One recommended solution is to assign the lot south of Bldg. 30 exclusively to Bldg. 12 employees, Shel mire said.

Of those responding to the survey, 82 percent said the distance they walk from car to office is not unreasonably long. On a mid-summer day, however, that percentage drops to 71.

Please see **PARKING**, Page 4

Longest Walking Distance by Buildings



Source: WHM Transportation Engineering Consultants Inc.

JSC

Ticket Window

The following discount tickets are available for purchase in the Bldg. 11 Exchange Gift Store from 10 a.m.-2 p.m. weekdays.

- General Cinema (valid for one year): \$4.
 AMC Theater (valid until May 1992): \$3.75.
 Loews Theater (valid for one year): \$4.
 Astroworld (valid 1991 season): season, \$44.94; child less than 4-feet, \$10.12; one day, \$15.85; Waterworld, \$8.15.
 Seaworld of Texas (valid 1991 season): child (3-11), \$12.25; adult, \$17.25; (2-day) child \$15.95; adult, \$21.95.
 Six Flags (valid until Nov. 17): adult (1 day) \$13.95.
 Texas Renaissance Festival (9 a.m.-6 p.m. weekends Oct. 5-Nov. 17, Plantersville, Texas): child (5-12), \$5.55; adult, \$9.25.
 Renaissance Festival bus trip (7:30 a.m.-5:30 p.m. Oct. 26 or Nov. 9, includes transportation and admission): child, under 5, \$7; child, 5-12 years, \$10; adult, \$15.
 NASA Night at Delta Downs (Nov. 16-17, tickets go on sale Oct. 2). Day trip (3:30 p.m.-2:30 a.m., includes transportation and admission to clubhouse): \$15. Overnight trip (12:30 p.m.-12:30 p.m., includes transportation, reception at Beaumont Hilton, accommodations, admission, brunch): \$50.

JSC

Gilruth Center News

Sign up policy — All classes and athletic activities are first come, first served. Sign up in person at the Gilruth Center and show a badge or EAA membership card. Classes tend to fill up four weeks in advance. For more information, call x30304.

Defensive driving — Course is offered from 8 a.m.-5 p.m., Nov. 16 or Dec. 14. Cost is \$15.

Aerobic dance — High/low-impact classes meet from 5:15-6:15 p.m. Tuesdays and Thursdays. Cost is \$24.

Exercise — Low-impact class meets from 5:15-6:15 p.m. Monday and Wednesday nights. Cost is \$24.

Weight safety — Required course for employees wishing to use the Gilruth weight room. The next classes will be from 8-9:30 p.m. Sept. 18, Oct. 3 and Oct. 17. Cost is \$5; pre-registration required.

Ballroom dancing — Professional instruction in beginning, intermediate and advanced dance. Eight-week session meets Thursdays beginning Oct. 3. Cost is \$60 per couple.

Aikido — Martial arts class meets from 6:30-7:30 p.m. Tuesdays and 5:15-6:15 p.m. Fridays. Next month-long class starts Oct. 1. Cost is \$35.

Fitness program — Health Related Fitness Program includes medical examination screening, 12-week individually prescribed education program. Call Larry Wier, x30301.

Fiction workshop — Writing workshop meets from 6:30-9 p.m. Wednesday's for five weeks beginning Oct. 22. Cost is \$80.

JSC

JSC

Dates & Data

Today

NMA seminar — The Texas Gulf Coast Council of the National Management Association will host "Management for the '90s and Beyond," a professional development seminar, from 8 a.m.-4 p.m. Sept. 20 at the Holiday Inn-Hobby. Call Sandra Watts, 280-2488, or Susan Missiha, 280-2428, for more information.

Cafeteria menu — Special: barbecue link. Entrees: deviled crabs, broiled codfish, liver and onions. Soup: seafood gumbo. Vegetables: buttered corn, green beans, new potatoes.

Monday

Cafeteria menu — Special: chili and macaroni. Entrees: barbecue sliced beef, parmesan steak, spare rib with kraut. Soup: French onion. Vegetables: ranch beans, English peas, mustard greens.

Tuesday

Free enterprise lecture — A brown-bag luncheon will discuss "The Oil Industry as a Failure of Price Control" at 11:30 a.m. Sept. 24 in the Lockheed Plaza eighth floor Training Rm. Call Charles Campbell at 333-6107 for more information.

BAPCO meets — The Bay Area PC Organization will meet at 7:30 p.m. Sept. 24 at the League City Bank and Trust, 303 E. Main, League City. Contact Earl Rubenstein, x34807, or Tom Kelly, 996-5019, for information.

Cafeteria menu — Special: corned beef hash. Entrees: meatballs and spaghetti, liver and onions, baked ham with sauce. Soup: split pea. Vegetables: buttered cabbage, cream style corn, whipped potatoes.

Wednesday

CLIPS conference — The second

annual CLIPS Users Conference will be Sept. 23-25 at the Gilruth Center. For more information, call Philip Johnson, 280-2239.

NMA meets — The NASA JSC Chapter of the National Management Association will meet at 5 p.m. Sept. 25 at the Gilruth Center. JSC Director Aaron Cohen will speak. For more information, call Valerie Burnham, x34210.

Astronomy seminar — The JSC Astronomy Seminar will meet at noon Sept. 25 in Bldg. 31, Rm. 129. Al Jackson will report on the Flagstaff Asteroids, Comets and Meteor Meeting. For more information, call Jackson, 333-7679.

Cafeteria menu — Special: barbecue link. Entrees: cheese enchiladas, roast pork and dressing. Soup: seafood gumbo. Vegetables: pinto beans, Spanish rice, turnip greens.

Thursday

ARC meets — The JSC Amateur Radio Club will meet at noon Sept. 26 in Bldg. 16, Rm. 253. This month's program will be a review of satellite tracking programs in public domain, Keplerian element sets, and how to get them. Call Dale Martin, x37740, for more information.

SOLE meets — The Houston Chapter of the Society of Logistics Engineers will meet at 5:30 p.m. Sept. 26 at the South Shore Harbour Country Club. Houston papers for the ninth Space Logistics Symposium will be presented. For reservations, call Dennis Wise, x33661; Mike Elliott, 333-6710; Ken Ziongreb, 283-5693; or Lee Graham, x30913.

BANN meets — The Bay Area NAFE (National Association of Female Executives) Network will meet at 6 p.m. Sept. 26 at the South

Shore Harbour Country Club in League City. Melanie Rhodeback will discuss pay equity and the undervaluing of women's jobs. For more information, call Sharon Westerman, 486-8927.

SCS meets — The Bay Area/Houston Chapter of the Society for Computer Simulation will meet at 11:45 a.m. Sept. 26 in the Lockheed Plaza 3 first floor Pic Rm. Graham O'Neil of Lockheed Engineering and Sciences Co., will discuss "Risky Simulations or Risky Business." For more information, call Wade Webster, 282-6589, or Robin Kirkham, 333-7345.

Cafeteria menu — Special: chicken fried steak. Entrees: roast beef with dressing, fried perch, chopped sirloin. Soup: beef and barley. Vegetables: whipped potatoes, peas and carrots, buttered squash.

Sept. 27

Cafeteria menu — Special: fried chicken. Entrees: fried shrimp, baked fish, beef stroganoff. Soup: seafood gumbo. Vegetables: okra and tomatoes, buttered broccoli, carrots in cream sauce.

Oct. 1

Free enterprise lecture — A brown-bag luncheon will discuss "Inflation and Depressions" at 11:30 a.m. Oct. 1 in the Lockheed Plaza eighth floor Training Rm. Call Charles Campbell at 333-6107 for more information.

Oct. 2

Astronomy seminar — The JSC Astronomy Seminar will meet at noon Oct. 2 in Bldg. 31, Rm. 129. Dr. Nadine Barlow will report on the Mars Surface and Atmosphere Through Time Workshop. For more information, call Al Jackson, 333-7679.

Swap Shop

Swap Shop ads are accepted from current and retired NASA civil service employees and on-site contractor employees. Each ad must be submitted on a separate full-sized, revised JSC Form 1452. Deadline is 5 p.m. every Friday, two weeks before the desired date of publication. Ads may be run only once. Send ads to Roundup Swap Shop, Code AP3, or deliver them to the deposit box outside Rm. 147 in Bldg. 2. No phone of fax ads accepted.

Property

Rent: Galveston condo, Seawall Blvd & 61st St, furn, sleeps 6, cable TV, swimming pools, wkly/daily/wkd rates. Magdi Yassa, 333-4760 or 486-0788.

Lease/Sale: Waterfront condo, 2-2, water-view, lg storage locker, 2 lg carports, boat slip, approx 1.4K sq ft, \$825, bills pd, or \$69K. 326-2221.

Lease: Pipers Meadow, 3-2-2, ceiling fans, W/D conn, avail 11/1, \$850. x31826 or 480-9436.

Lease: Nassau Bay, fresh lake waterfront, pool, 4-2.5-2, FPL, 3K sq ft, avail Oct 1, \$2K/mo. Phil, x37892 or 333-9518.

Lease: El Lago condo, Pebblebrook, 1-1, mirrored walls, mini blinds/verticals, W/D, upstairs, 650 sq ft, avail Oct 1, \$350/mo, \$200 dep. Lindemann, 488-3300 or 532-2218.

Sale: Omega Bay waterfront lot, access to westbay, all utilities. (409) 935-9250.

Lease: Broadway/Park Place area, 3-2, CA/H, hdwd floors, FPL, yr lease plus dep, avail Oct 1, \$545/mo plus bills. 649-5029.

Cars & Trucks

'77 Gran Prix, new eng, 15K mi warr, new radiator, new alternator, battery, starter, transmission less than 2 yrs old, \$1600. 554-5514.

'85 Honda CRX, 5 spd, A/C, stereo, 1.5L, good cond, 65K mi, \$3.5K OBO. Craig, 280-0176.

'76/'77 Toyota parts, complete Celica eng, transmission, clutch assy, front and rear end parts, lift back w/glass, misc int parts. Mike, 480-2578.

'82 Ford Window Van, P/S, P/B, 6 cyl/300, dual air, new paint, good upholstery, tinted windows, no glass cracks, light trailer hitch, quick release bench seats, \$3.2K OBO. x39141 or 482-2197.

'78 Datsun King Cab PU parts. 335-2270 or 481-9684.

'89 Honda Prelude Si, sky blue, 5 spd, ex cond, loaded, 28K mi, \$12.5K. 480-9125.

'79 Ford E150 Van, \$2950. x38563 or 331-7957.

Ford 360 eng w/alternator, distributor, ignition coil, two-barrel carb, and flywheel, \$250. 333-6937 or 488-7942.

'91 Toyota Corolla, 1.7K mi, 2 months old, A/C, AM/FM/cass, P/S, pearl red. Krish, 286-9344.

'85 Thunderbird Turbocoup, red, FI 2.3 liter, power options, plush interior, rustproofing, 66K mi, ex cond, \$3950K, x34390 or 282-3540.

'84 Nissan 300ZX 2 plus 2, auto, A/C, grey, stereo, consider partial trade for a Mac SE/30, MACII PC or car, \$5650; '80 Pontiac Phoenix, V6, A/C, 4 dr liftback, auto trans, AM/FM

stereo, good cond, consider trade for Apple MAC SE/30 or MAC II PC, \$1950. x30092 or 481-3637.

'71 Chevy Blazer, convertible, 4 wheel dr, rebuilt eng, new dual exh, new batt, \$1250. 282-4844 or 554-6466.

'80 Ford Clubwagon Van, 3/4 ton, V-8, seats 12, rebuilt brakes, 107K mi, good cond, \$1.7K. 474-7785.

'88 Mustang GT, loaded, ex cond, orig owner, \$7.8K. 486-0938.

'81 VW Diesel PU, 4 spd, ex cond. 339-1619.

'58 Chevy Stepside, SWB, HT, 350, \$1.2K; '87 Subaru GL-Sedan, A/C, manual trans, alloy rims, 52K mi, \$5K. Tim, 488-3436.

'82 Ford LTD Crown Victoria, 4 dr, \$1250. 946-7587.

'72 MGB, orig owner, ex cond, \$4.5K. 532-2188.

'91 Dodge Custom Van, 10K mi, loaded, ex cond, \$16.5K OBO. 331-9329.

'77 Chevy Impala, A/C, AM/FM/cass, tilt, cruise, 61.2K mi, \$2.3K; '91 Chevy S-10 PU, A/C, AM/FM/cass, 5 spd, 11K mi, warranty, \$6.9K. 996-8937.

'74 BMW 2002, 4 spd, green w/wh int, new tires, new \$2K paint job, sun roof, AM/FM/cass, ex cond, \$8K OBO. David, x32791 or 488-9768.

'87 Nissan Maxima, grey, sunroof, digital package, auto, A/C, ex cond, \$8K. 333-7248 or 480-9544.

'85 Fiero GT, blk, A/C, sunroof, 4 spd, \$5K. 331-6659.

Cycles

14 spd Houdaille bicycle, pwr cam, \$50 OBO. Craig, 280-0176.

'85 Yamaha RZ 350, red/wht/blue Kenny Roberts replica, 5K mi, \$1.2K OBO. Jim, 585-0679.

'85 Honda Nighthawk 450, good cond, blue, \$1.1K. x36037.

'78 Kawasaki Kz 650, 4 carb, ex cond, new paint, 10K mi, \$700. x38753 or 334-4937.

'80 Yamaha, 400 cc, low mi, blk with blk mags, windjammer plus old lights, \$750. Eric, 339-3278.

Yamaha FZ 750, water cooled, 20 valve, blue/wht, ex cond, inc ARAI supvent, bike cover, \$3.6K. Gary, x32144.

'88 Suzuki RM-125, low mi, ex cond, \$1.3K. 331-6659.

Boats and Planes

'81 J30 Racer/Cruiser Sailboat, diesel, VHF, wind inst, below wholesale. Doug, x37067 or 852-1031.

Loran, Sitex/Koden, C Navigator, \$175 OBO. 554-2728.

'88 18' Phantom 180-Illusion, open bow, 170hp, OMC, I/O, full inst, ex cond, \$8K. x38753 or 334-4937.

'80 Hobie Cat, 16 ft, good cond, trl inc. 337-1491.

Lido-14 Sailboat, sails and trlr, \$995. R. Hoover, x31360 or 996-7716.

Audiovisual & Computers

Beta VCR, plays tapes fine but has prob-

lems recording, \$25 OBO. Howie, 282-3841 or 482-8354.

32-bit 386 PC, IM RAM, 20M HD, software, \$900. 538-2123.

IBM Cap Card Reader and Card Puncher, inc cables, model N009-17-60, BO. 282-4665 or 326-1492.

Mac SE 2.5/20, 2400 Baud modem, 6 outlet surge protector, Macwrite, Macdraw, Filemaker, Claris CAD, Smartforms, Designer, Microphone, Hypercard, other misc SW, \$2.5K. Doug, 282-3234.

JVC 13" color TV, \$50; RCA 19" color TV, \$200; Code-A-Phone answering machine, \$80. 35896 or 488-7982.

Beta VCR, high performance component stereo, microwave, willing to exc 1 wk time-share, 2-2 condo for area of your choice. Tim, 996-9191.

Mac Plus, 20M HD, 4M RAM, Imagerwriter II printer, plus ext dr, software, ex cond, \$1.1K. 280-8796.

2400 Baud ex modem w/SW, ex cond, \$95. Howie, 282-3841 or 482-8354.

Musical Instruments

1911 Francis Bacon player piano, ex cond, ivory keys, tuned in Aug '89, bench, 100 player rolls, some out of print, \$4K. Mike, 480-2578.

Lowery Theater Spinet Organ, model H-10, bench, 1 oct pedals, built in Leslie speaker, percussion, \$495 OBO. x31373 or 468-5005.

Ludwig snare drum, \$300. 998-7260 or 471-3218.

Acoustic 370 Bass Amp, twin 15" cab, SRO elec speakers, amp cover, \$500 OBO, x30545 or 334-2291.

Pets & Livestock

Free male Golden Retriever, neutered, 23 months old. x35896 or 488-7982.

Rabbits, \$7 and up. Gailo, 554-6200.

Baby Cockatiels, hand fed, hand raised. Linda, 484-7834.

One hive of bees, all supplies, 15 hive bodies, 2 suits, \$200. 482-7873.

Household

Sofa with hideaway bed, brwn/wht, ex cond, \$50. x31497 or 554-4215.

California king waterbed w/drawer storage, ex cond, \$175. 333-4795.

2 Mauve Lane recliner rockers, ex cond, \$75/ea; 1 rust colored rocker, \$50. 334-4211.

King sz oak waterbed, motionless matt, padded rails, 6-drawer, pedestal frame, \$200. 538-2123.

Sears Kenmore elec dryer, \$25. 482-7546.

Apt sz elec dryer, good cond, \$75; wood drafting table, \$25. Cindy, x32188 or 488-5944.

Montg Wards Frostless 18" refrigerator, almond, needs minor repair, \$250. Barbara or Charissee, 434-1053.

Queen sz semi-motionless waterbed, padded rails, new heater, mattress pad and sheet, \$85. Howie, 282-3841 or 482-8354.

W&J Sloane loveseats, 72" long, gray/green, walnut frame, ex cond, \$195/ea, both \$295. x31373 or 486-5005.

Queen sz Somma II motionless waterbed,

\$300. Linda, x32891.

GE washing machine, 2 yrs old, \$200; queen sz bed and frame, \$100. Tony, x34255 or 286-8564.

Free old dishwasher, runs, you pick-up. Robert, 283-4135.

Simmons crib w/mattress, \$300; full sz head/foot board, \$75; Kenmore portable dishwasher, \$200. x36776 or 286-3266.

1 queen sz waterbed, bookcase hdbd, padded rails, 6 drawer pedestal, \$150; 1 queen sz waterbed, brown velour couch-back hdbd, rails, matching sheets and comforter, \$125. Dave, 283-1966 or 480-6022.

Dinette, \$150; sofabed, was \$400 now \$200, king sz bedding, \$30; lamp, \$10; end table, \$15; stool, \$5, phone, \$5. 333-5179.

Photographic

Olympus Auto-Zoom Lens, 35-105 mm, F-stop 3.5 to 4.5. \$250; Vivitar Zoom Thyristor Flash 3500, ex cond, \$80. 486-2048.

Metal camera tripod, ex cond. John, x35514 or 474-9464.

Wanted

Want space shots series 1 and ST:TNG trading cards to complete sets, will trade or buy. Patrick, 282-3544.

Want ski boots, ladies sz 9, skis approx 170 cm; scuba regulator; wetsuit, mens extra lg; wetsuit, ladies lg. Alex, x31811.

Want roommate to share 2-2 apt, non-smoker, \$260/mo, \$50/mo util plus \$100 dep. 333-8047 or 286-7046.

Want Teddy Ruxpin cass tapes, books and games. Karen, x38297, or 996-8821.

Want 5th roommate for house on Clear Lake, boat slips, \$300/mo plus 1/5 util. x32503, or 334-2647.

Want Nordic Track exerciser. 480-1024.

Want non-smoking roommate to share 2 BR apt, W/D, must like cats, all bills pd, avail immed, \$375/mo. Susan, 283-5704.

Want car pool from FM1960 Champions area to JSC, hrs 8-4:30, Mon-Fri. Paul, x35277.

Want a rm 3 nights per wk, non-smoker, \$180/mo incl util OBO. Doug x35214 or 444-3164.

Want underwater camera, 100 ft or greater, reasonably priced. 280-8796; scuba gear for sm lady, suit, BC, regulator, flippers. 280-8796.

Want roommate to share 2-2 house, Countryside, must like pets, \$250 incl util. Dave, x31840 or 559-2512.

Want partner(s) interested in '76 Rockwell Commander 112A aircraft, based at LaPorte. Doug, x37067.

Miscellaneous

Antique Blue Opal Ring. Valued at \$875, will sell for \$325. 283-9397

Tour Model III golf clubs, 1-SW, \$17/club; metal woods, \$30/club. David, 554-5514.

Ladies Blue Fox jacket, was \$600 now BO by 10/1. Suzanne, 338-1976 or 282-6701 x3478.

Weight set and bench, \$20. Howie, 282-3841 or 482-3985.

Dishware set, \$20; 40L suit, \$20; karate

gear, \$15; cordless mixer, \$15; car top carrier, \$10; framed FSU Seminole, \$10. 333-5179.

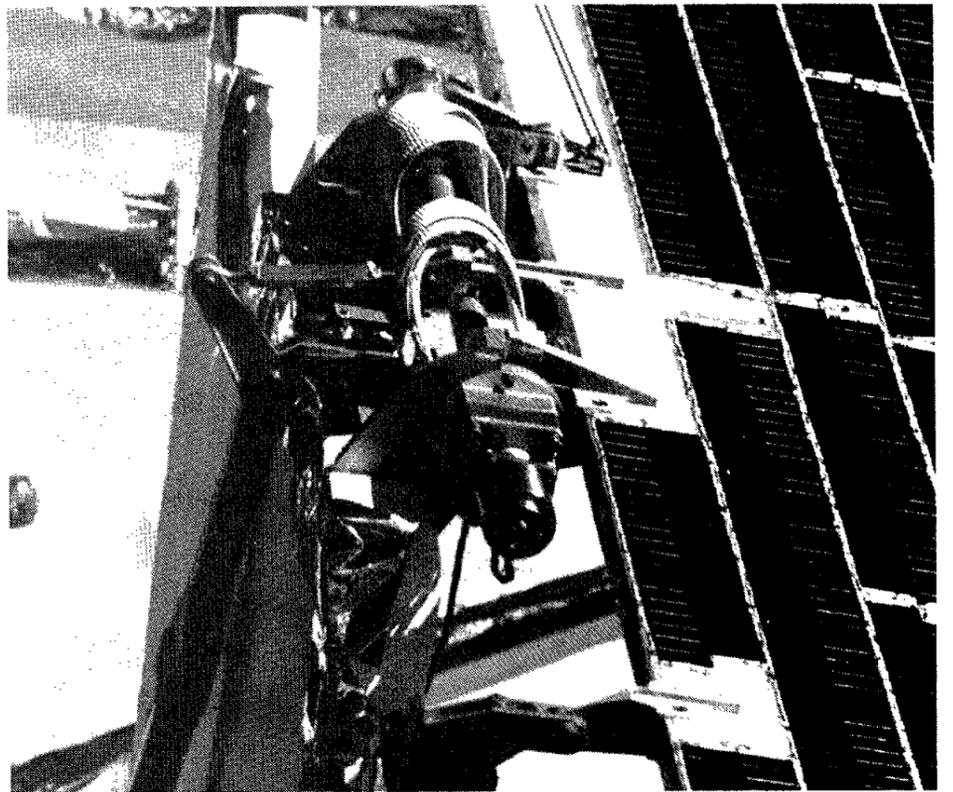
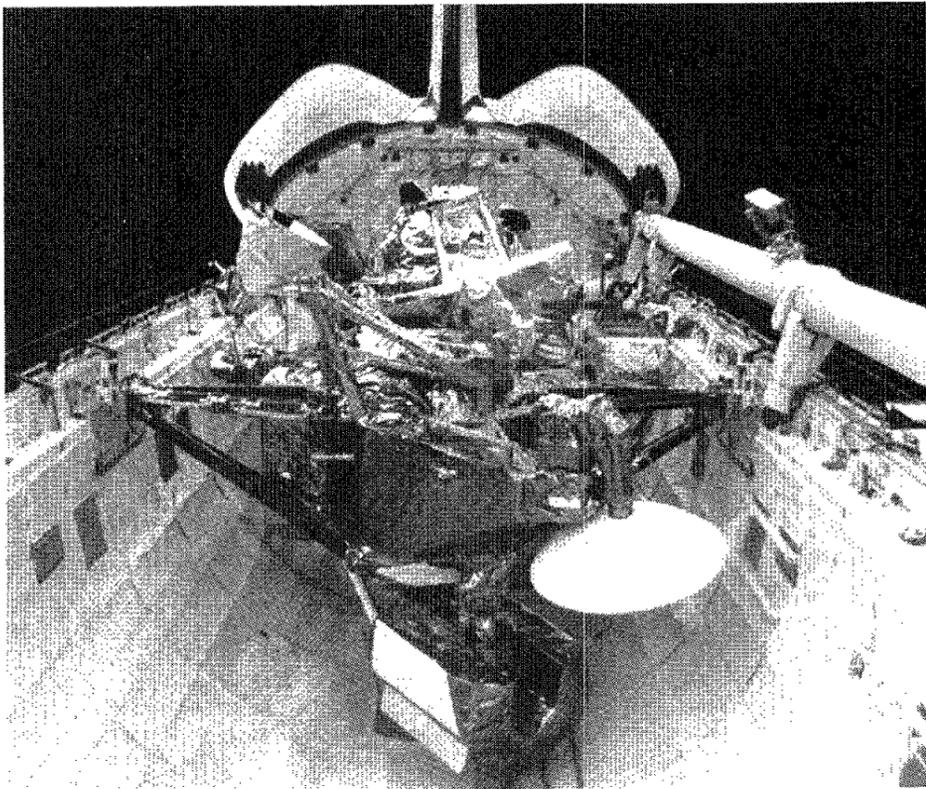
Elec wheelchair w/recharge batt, \$650. Pam, 335-6421 or Betty, (409) 935-1507.

2 sets of car board racks, ex cond, \$40/ea. 333-4795.

Spoke hubcaps, fits 15 in rims, from Chrysler New Yorker, \$100/set of 2. 338-1976 or 282-6701 x3478.

Sharp copy machine, works but streaks paper, needs drum to be cleaned, \$25 OBO. Howie, 282-3841 or 482-8354.

'79



Shutter Bugs

The Electronic Still Camera made its debut on STS-48, allowing the crew to send down high-resolution still photographs from space for the first time.

The new technology involves a camera that electronically captures and digitizes an image with resolution approaching film quality. The image is stored on removable hard disks or small optical disks and can be converted to a format suitable for downlink transmission and enhanced image processing. The ESC was developed by JSC's Man-Systems Division and is the first model in a planned evolution leading to a family of digital imaging devices. These photos are second-generation prints made from electronically produced black and white negatives.

Clockwise from top left:

1) The Upper Atmosphere Research Satellite is shown berthed in *Discovery's* payload bay;

2) Demonstrating its capability to provide high-resolution images for

review by ground controllers, the ESC zooms in for an extreme close-up of UARS' solar array prior to deployment;

3) Commander J.O. Creighton interrupts his observations out the shuttle window to pose for a portrait;

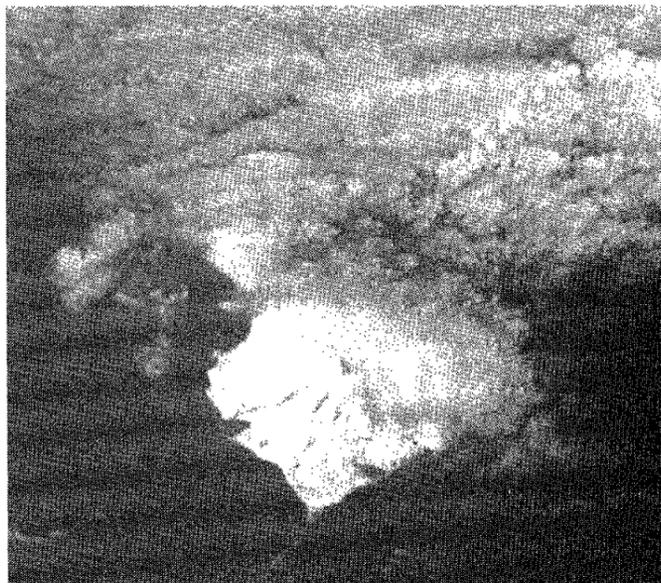
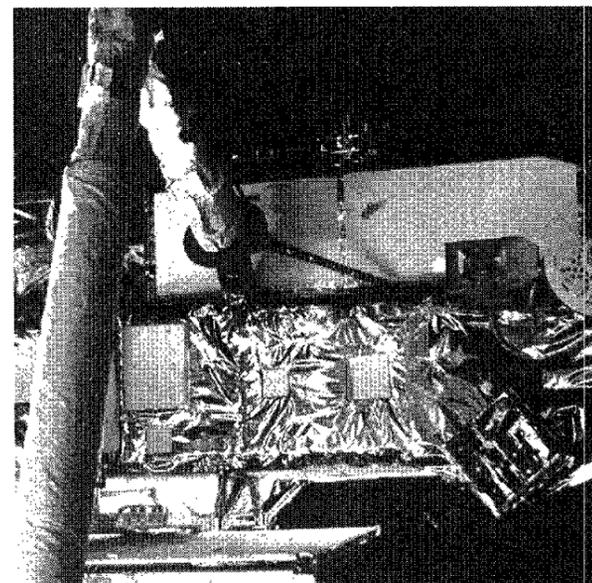
4) Mission Specialist Jim Buchli "catches" goldfish snack crackers as they float in the weightless environment of the middeck;

5) Ice-covered Kerguelen Island in the South Indian Ocean can be seen clearly, including the central peak, bays and ice along the coast. Earth observation scientists point out the shuttle's 57-degree inclination provided a rare opportunity to see the island;

6) *Discovery's* robot arm gets a grip on UARS prior to deployment of the satellite;

7) Mission Specialist Sam Gernar consults the Payload Operations Checklist for procedures regarding the Shuttle Activation Monitor experiment; and

8) and 9) Pilot Ken Reightler, left, and Mission Specialists Mark Brown pose for ESC test portraits.



JSC taps Raynor for minority contractor of year

By Pam Alloway

For the second year in a row, JSC has nominated Raynor Computer Services Inc. of Houston to compete for NASA's Minority Contractor of the Year award.

And for the first time this year, NASA also has chosen to select a "Minority Business Subcontractor of the Year." Network Solutions, nominated by IBM's Federal Sector Division of Houston, was the winner of that honor.

Network Solutions is based in Herndon, Va.

These two awards are part of the next week's federal Minority Business Development Week activities which are held to honor the nation's more than 800,000 minority owned businesses.

Local Minority Enterprise Development Week activities recognizing minority businesses' achievements and contributions to the nation's economy will conclude with an 11:45 a.m. awards luncheon and 2 p.m. mini-trade fair on Friday at the Marriott Astrodome Hotel, 2100 South Braeswood.

In addition, a minority youth in business session and a negotiations seminar for Minority Business Enterprise participants will be held Saturday morning at the Texas Southern University's Ross Sterling Student Union Building.

For additional information on these activities contact Bertha Vaughns at 713-653-3464.

JSC recognized Raynor for the company's outstanding performance in providing JSC with office equipment maintenance and repair services since April of 1989.

Originally founded as Micro Doctor, the company has a history of outstanding performance since its inception in 1984. In 1985 during ceremonies held in Washington, D.C., the company received the Small Business Administration's "Administrator's Award of Excellence."

Other subcontractors nominated by JSC prime contractors for the Minority Business Subcontractor of the Year award include: Tejas Office Products, nominated by Rockwell; Choctaw Enterprises

nominated by Boeing; Syscom Development, nominated by McDonnell Douglas; and Challenge Office Products, nominated by Lockheed.

NASA has worked actively to place a representative portion of its business with minority owned firms. JSC's commitment to using minority businesses has increased from \$73,000 in annual business obligations during fiscal year 1970 to this fiscal year's (1990) record amount for the center of more than \$38 million.



JSC Photo by Jack Jacob

Doug Holland, Jim Raglan and Rao Linga, left to right, show STS-48 Mission Specialist Mark Brown how well his Electronic Still Camera photographs turned out on the ground. The ESC ground team greeted Brown at the Ellington Field welcome home ceremony Wednesday. The crew is scheduled to share its experiences with employees at noon next Friday in Teague Auditorium.

Discovery crew completes objectives

(Continued from Page 1)

its way." "Welcome to the era of NASA's Mission to Planet Earth," said UARS Program Manager Mike Luther.

Brown, operating the remote manipulator system from the aft flight deck, plucked the environmental research satellite from the payload bay just after 6 p.m. CDT Saturday, well ahead of schedule, and turned control over to the payload controllers at the Goddard Space Flight Center. UARS single solar array and high gain antenna deployments went without a hitch, and the solar arrays began charging spacecraft batteries.

Controllers fired UARS onboard thrusters Tuesday, Wednesday and Thursday to raise the satellite to its operational altitude. After a 30-day checkout, the 14,419-pound satellite will begin studying the upper atmosphere, including the ozone layer that filters out harmful ultraviolet radiation.

"The human species has reached a point in its history where it can now affect the global environ-

ment," said NASA Associate Administrator Lennard Fisk, the agency's top space science official. "We are going to have to make a lot of important decisions over the next several decades as to how we are going to protect the environment from ourselves. UARS and its companion satellites in Mission to Planet Earth are designed to give policy makers that information so that we can, in fact, make good policies."

The shuttle commander testified to the importance of the satellite investigation during a live radio interview with Larry King, saying "When you look out at the horizon and you see the atmosphere and it's only about an inch thick, you realize just how fragile this planet can be. We'd better learn to take care of it."

The day after deployment, the crew had to dodge a Soviet Cosmos 955 rocket body, which tracking sources predicted would pass within 1.2 nautical miles of *Discovery*. The maneuver kept the shuttle 8.7 nautical miles from the orbital debris.

"I think we scored a space first, the first time we've ever had to maneuver to avoid a conjunction," Capcom Jan

Davis told the crew. "So good work on everybody's part."

The crew completed 11 hours of experiments in fluid and structural dynamics with the Middeck 0-Gravity Dynamics Experiment. Brown, Buchli and Gemar set up and watched a series of Lexan cylinders — two containing silicon oil and two containing water — as a computer sent precisely controlled forces to a shaker device, then measured the fluid's movements. Investigators hope to learn more about moving liquids, such as fuel, in future spacecraft.

Buchli and Brown also studied how vibration affects jointed truss structures, working with four different models under study for Space Station *Freedom*. Engineers hope the results will lead to more sophisticated computer models to more accurately predict the performance of future large space structures.

"While it might look like an Erector Set," Buchli said, "it's not a trivial experiment. I expect there are two or three folks whose Ph.D.s are riding on it."

ISD establishes UNIX administrators group

JSC's Information Systems Directorate wants to establish a centerwide organization of UNIX super users and systems administrators.

The first meeting of the JSC Unix Systems Administrator Group will be at 2 p.m. Sept. 27 in Bldg. 12, Rm. 254/256. All NASA UNIX systems administrators are invited.

ISD hopes the group will be able to provide a forum for establishing and distributing systems standards

for the computer operating system; addressing centerwide issues such as system security and penetration response; identifying suitable education courses, conferences and seminars; establishing a contact list; sharing problem solutions; learning new techniques and procedures and staying abreast of UNIX and JSC developments.

For more information, call Mark Hutchison at x30965 or 282-1777.

Parking adequate for now

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Center management already is acting on several of the six-month study's short-term recommendations, which Shelmire said include restriping several lots around the center.

New traffic control procedures on Second Street during evening rush hour have "already made a difference" in the traffic patterns, Shelmire said.

The program goals include providing adequate parking while maintaining green space, minimizing capital cost and reducing or maintaining current walking distances.

Concerning the desire to maintain the grass or "green" areas at JSC, the survey asked employees if they would be willing to pay for covered, reserved parking in garage locations between Bldgs. 31 and 29; behind Bldg. 30 and next to Bldgs. 3 and 5.

An average of 89 percent of respondents said they do not favor paying for garage parking. Eight percent said, however, that they would pay \$10 per month for

reserved, covered parking. Only one percent said they would pay \$30 per month.

Shelmire said that the "most important thing now is to implement the short-term recommendations. That would make an immediate impact" on the traffic and parking situation for employees."

Long-term solutions being studied include creating remote lots with shuttle service, encouraging car and van pools and improving shuttle and taxi service.

Other statistics from the study include:

*The average daily traffic volume entering and exiting JSC is about 20,000 vehicles.

*The average daily peak accumulation of vehicles on site is 7,150 vehicles, with 6,400 in the mall area.

*There are 7,363 parking spaces in the mall area and another 1,781 spaces in non-mall areas.

*An estimated 853,150 people visit JSC each year in 2,62,500 cars.

The study was prepared by WHM Transportation Engineering Consultants Inc. of Austin.

Truly tells children to read

(Continued from Page 1)

Mars, the President replied he thinks it is important for America to continue to explore like the American pioneers who crossed the country in covered wagons.

"I think it's going to go to the cutting edge of science," explained Bush, who is learning to use a personal computer in his office. "I think it would be a quantum leap forward in our knowledge of what the universe is about, and I hope that in addition it would have very practical answers to some of the problems we face on Earth."

Bush encouraged all of the students to learn, and said one of his six educational goals is to make America first in the world in math and science.

"As you begin the school year, just think of what you can make of the

future," he said. "Many of you are the class of the year 2000. You, the students of today, will help keep America the world's leader."

"Even if you don't end up working in space, what you learn about math and science and all the rest of the subjects you study will help you for the rest of your life. Do your best, make America proud."

NASA Administrator Richard Truly introduced the President and gave a pep talk to young people across the country.

"Read, read, read," he said. "Read hard books. Read new books. Spend more time reading than watching television. Take hard courses, especially in math and science. Pay attention. Don't sluff off and miss out on civics, history and art, geography and language, and particularly writing."

Advisory group sees challenges ahead

(Continued from Page 1)

steps to implement or recommendations," Augustine wrote. "Nonetheless, much is yet to be accomplished."

The group remained convinced of the importance of the science program, of the need for alternative launch vehicles, of the need to separate day-to-day management of the space shuttle program and space station development, of the critical nature of a strong technology program and of the necessity of substantive management improvements and of the desirability of a balanced "go-as-you-pay" exploration program.

The shuttle-station separation recommendation was put into effect after Truly discussed the plan with the group at its reunion.

"I am very pleased with this assessment, and the committee's findings speak for themselves," Truly said. "We are gratified at the supportive letter from the committee and will continue to work to make NASA a more excellent agency."

The group said it still thinks a new unmanned but man-ratable launch system should be a "high priority," and that the Space Station *Freedom* redesign has cut costs and reduced the assembly and testing risk.

The committee wrote that America's space technology program continues to be underfunded, but that NASA is planning to more directly connect technology efforts to the end uses which should help the space technology effort.

It bemoaned the budget debate that pits space against other compelling national needs, saying that one of the worst possible outcomes would be a civil space program where new programs are started, continually revamped and then abandoned.

Augustine and the group concluded that the next annual NASA budget may show a decrease of 4 percent in real terms due to the intensified debate of the national deficit, national priorities and NASA's effectiveness. That could mean a space program whose content and budget don't match which would be a disservice to all but especially those in NASA charged with carrying out complex multi-year projects on which peoples' lives and the nation's image may rest.

Space News Roundup

The Roundup is an official publication of the National Aeronautics and Space Administration, Lyndon B. Johnson Space Center, Houston, Texas, and is published every Friday by the Public Affairs Office for all space center employees.

Editor Kelly Humphries
Associate Editors Pam Alloway
Kari Fluegel

Detailed plans coming

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Detailed definition of the new development organization and appointment of the associate administrator will be completed in the coming weeks.

The decision to create the new office was shared with former Chairman Norman Augustine and members of the Advisory Committee on the Future of the U.S. Space Program, gathered for a reunion at Kennedy Space Center.